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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/557,820	11/23/2005	Kwan Young Han	074998-0012	2544

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WASHINGTON, DC 20005-3096

EXAMINER

TRAN, TONY

ART UNIT	PAPER NUMBER
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2809

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/557,820

Applicant(s)

HAN ET AL.

Examiner

Tony Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Claim 13 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The examiner would assume that claim 13 depend on claim 12 and examine base on that merit.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this office action:

A person shall be entitled to a patent unless —

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Admitted Prior Art, Carey et al. (Patent No.: 6274924 B1).

Regarding Claim 1, Carey et al., FIG. 2 discloses a high power light emitting diode package (see the Abstract) comprising: a main body (12, col. 2, lines 20-25); at least two lead terminals (leadframe 12, col. 2, lines 22-24) fixed to the main body (the insert-molded lead frame 12, col. 2, lines 22-24); and

at least two heat sinks of electrically and thermally conductive materials (18 & 10, note that the submount 18 provides a thermally conducting path...and may be electrically conducting, col. 2, lines 59-67, and the slug 10 employs a copper slug, col. 2, lines 47-50), the

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heat sinks being separated each other (the submount 18 may be electrically conducting or insulating, col. 2, lines 60-65, note that if an insulating submount 18 is used, then the slug 10 is electrically insulating, col. 2, lines 42-45) and fixed to the main body (12).

Regarding Claims 2 and 3, Carey further disclose the package of claim 1, wherein each of the at least two heat sinks has a reflective surface extended from an upper surface thereof (reflector cup 14, col. 2, lines 25-27).

wherein the at least two heat sinks are a pair (18 & 10, note that a pair is the two corresponding persons or items, similar in form or function)

Regarding Claims 4-7, Carey, FIG. 2 further discloses at least one light emitting diode die (16, col. 2, lines 27-29) mounted on upper surfaces of the at least two heat sinks (note that 16 mounted on 18 and 18 mounted on 10), the die being directly and electrically connected to the heat sinks through a surface of the die (col. 2, lines 59-64).

bonding wires electrically connecting the at least two lead terminals, the at least two heat sinks and the at least one light emitting diode die (bond wires extend from the LED 16 and the submount 18 to metal leads on leadframe 12, col. 2, lines 27-30).

a lens attached to the main body, the lens enclosing the at least one light emitting diode die (20, col. 2, lines 30-35).

wherein the lens includes an optically transparent material which is directly contacted with the at least one light emitting diode die (col. 2, lines 30-35 and col. 3, lines 11-16).

Claim Rejections - 35 USC § 103

35 U.S.C. 103 Conditions for patentability; non-obvious subject matter.

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. (Patent No.: US 6274924 B1) in view of Admitted Prior Art, Robert et al. (Patent No.: US 6335548 B1)(hereinafter Robert).

Regarding Claims 8-10, and 12-13, Carey does disclose all the limitation of claims 1 and 4.

However, Carey does not disclose the limitation of claims 8-10 and 12-13.

Nevertheless, Robert et al. does teach a surface mountable LED package (see the Abstract) wherein a fluorescent material converting the wavelength of light emitted from the at least one light emitting diode die (fluorescent dyes....within the encapsulant....re-emit it at lower wavelength, col. 24, lines 39-45, note that the encapsulant is the 804, FIG. 8, col.24, lines 20-30)

wherein the at least two lead terminals (1902, 1903 and 1904, FIG. 19a and 19b, col. 30, lines 15-16) include: lead terminals electrically connected to the at least two heat sinks (die 1909, 1910 and 1911, FIG. 19a, note that 1909, 1910, and 1910 are the heat extraction members) respectively;

a common lead terminal electrically connected to all of the at least two heat (the base (cathode) of the dies, the cup 301 and 204, col. 29, lines 61-67 and col. 30, lines 1-11, FIG. 9a).

light emitting diode dies (1909, 1910 and 1911) mounted on the respective heat sinks (301 and 204), the light emitting diode dies emitting different wavelengths of light (the

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three dies 1909, 1910 and 1911 emit at red, blue, and green wavelengths respectively, col. 30, lines 13-14).

wherein the light emitting diode dies include light emitting diode dies (1909, 1910, and 1911) emitting a first wavelength of light (red), a second wavelength of light (blue) and a third wavelength of light (green), respectively.

wherein the first wavelength, the second wavelength and the third wavelength are red wavelength, green wavelength and blue wavelength, respectively (the three dies 1909, 1910 and 1911 emit at red, blue, and green wavelengths respectively, col. 30, lines 13-14).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to apply a fluorescent material converting the wavelength of light emitted from the at least one light emitting diode die and all the limitation as taught in claims 9-10 and 12-13. One would have been motivated to make such a change to produce a multi-color combinations of pluralities of visible colored LEDs are being used as the source of projected white light for illumination. Such illuminators are useful as vehicle or aircraft maplights etc. (Robert et. al., col.1, lines 45-55), and inclusion of such would improve the photometric efficiency (Carey et al., col. 1, lines 9-15).

Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. (Patent No.: US 6274924 B1) (hereinafter Carey) in view of Admitted Prior Art, Robert et al. (Patent No.: US 6335548 B1) (hereinafter Robert) and in further view of Pederson (Pub. No.: US 2005/0001562 A1).

Regarding Claim 11 and 14, Carey and Robert et al. do disclose all the limitation of claims 1, 9 and 10.

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However, Carey and Robert do not disclose the limitation as claim 11 and 14.

Nevertheless, Pederson does teach an additional heat sink (346, FIG. 18, [0118]); and a zener diode (614, FIG. 6, [0144])) mounted on the additional heat sink (note that the zener diode is mounted on one of the opening 344, FIG. 18, [0118]), and

a controller (50, FIG. 26, [0154]) for controlling the electric power supplied to the light emitting diode package ([0153]), wherein the controller controls the amount of the current supplied to the respective heat sinks (microcontroller 900 switches to decrease the current, [0153]).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to include all the limitation in claims 11 and 14, as taught by Pederson. One would have been motivate to make such a change to optimize the performance of the LED (Pederson, [0003]), and inclusion of such would improve the photometric efficiency (Carey et al., col. 1, lines 9-15).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Tran whose telephone number is 571 270-1749. The examiner can normally be reached on Monday through Friday: 7:30AM-5:00PM (E.S.T.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bruce can be reached on (571) 272-2487. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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